REMARKS/ARGUMENTS

Amendments to the Drawings

Figure 2 on sheet 2 of 7 has been amended to add descriptive labels corresponding to numerical identifiers 21, 22 and 23. Numerical identifier 21 has been labelled as "Tunable Laser Diode", numerical identifier 22 has been labelled as "SOA" and numerical identifier 23 has been labelled as "Multi-wavelength Etalon Reference". This amendment should overcome the Examiner's objection to the drawings.

Status of Claims

Claims 1-22 remain in the application.

Allowance of claims 1 to 19, 21 and 22 is gratefully acknowledged.

Amendments to Claims

Claim 20 has been amended to add the limitation that "amplified spontaneous emission (ASE) from the SOA is used to characterize bias levels of the external modulator". Support for this amendment can be found on page 10, lines 6-14, which states "the inventive method involves scanning the modulator transfer function each time during transmission start-up to determine the dc bias voltages corresponding to minimum and maximum transmission. The modulator transfer function is measured using low level ASE light output from the SOA in order to find the modulator bias voltages corresponding to maximum attenuation (minimum transmission) and maximum transmission (minimum attenuation)".

35 U.S.C 103 Claim Rejections

The Examiner has rejected claim 20 under 35 U.S.C. 103(a) as being unpatentable over Walker (U.S. Patent No. 6,023,362) in view of Kosaka (U.S. Patent No. 5,675,432).

The Examiner states that Walker discloses an externally modulated wavelength division

multiplexed (WDM) optical transmitter in Figure 1, wherein Walker describes a continuous wave (CW) laser (identified by numerical identifier 42 and described at column 2, lines 57-60), an optical amplifier positioned after the laser (identified by numerical identifier 45) and an external modulator (identified by numerical identifier 44) positioned after the optical amplifier (as described at column 2, lines 44-46).

The Examiner further states that Walker does not disclose that the optical amplifier is a semiconductor optical amplifier (SOA) or that the gain of the SOA is adjustable so as to provide control of the optical output power of the transmitter. However, the Examiner states that Kosaka teaches an optical transmitter system related to the one disclosed by Walker including an optical amplifier as disclosed in Figure 2. The Examiner further states that Kosaka teaches that the optical amplifier may be a SOA and that the gain of the SOA is adjustable so as to provide control of the optical output power of the transmitter.

The Examiner alleges that it would have been obvious to one skilled in the art at the time of the invention to allow the gain of the amplifier disclosed by Walker to be adjustable as taught by Kosaka in order to provide flexibility in the system and allow users to readily adjust the amplifier gain. It is also alleged that it would have been obvious for one skilled in the art to use the SOA as taught by Kosaka as an optical amplifier in the system disclosed by Walker.

The optical transmitter disclosed by Kosaka may be related to the one disclosed by Walker, but there are differences. Walker discloses a laser 42, an optical amplifier 45 positioned after the laser 42 and an external modulator 44 positioned after the optical amplifier 45. Kosaka discloses an optical transmitter 1 and a series of amplifiers 2,4,5 and fiber sections 3 which connect to an optical receiver 6. The amplifier that the Examiner has identified within Figure 2 is external to the externally modulated optical transmitter disclosed by Walker. Kosaka is disclosing amplifiers to be used external to the optical transmitter, whereas Walker is disclosing an optical amplifier that is located between the laser source and the external modulator wherein the optical amplifier, laser source and external modulator are considered to be within the optical transmitter.

Claim 20, amended as described above, recites that "amplified spontaneous emission (ASE) from the SOA is used to characterize bias levels of the external modulator". Walker and

Kosaka, alone or in combination, do not suggest or disclose that an optical amplifier, in particular a SOA, located between a laser source and an external modulator is used to characterize the bias levels of the external modulator. Walker discloses an external modulator but makes no suggestion or disclosure regarding how bias levels are characterized. Therefore, it is submitted that the Examiner has not clearly established a prima facie case of obviousness as the combination of Walker and Kosaka do not recite all the elements as disclosed in claim 20 of the present application. It is believed that claim 20 patentably distinguishes over the cited prior art and as such it is respectfully requested that the Examiner reconsider and withdraw the 35 U.S.C. 103(a) obviousness rejection.

In view of the forgoing, early favorable consideration of this application is earnestly solicited.

Respectfully submitted,

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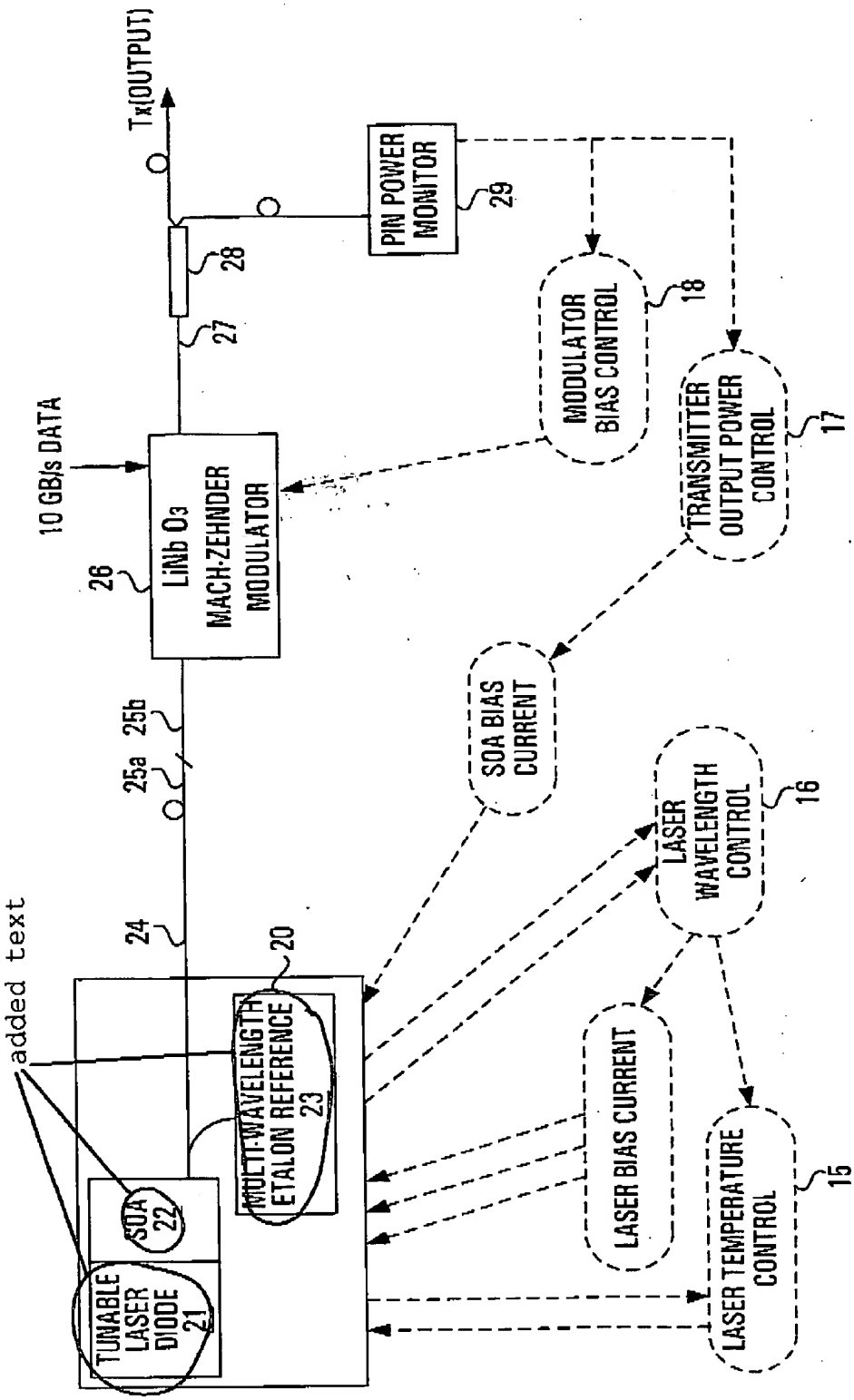
Tx(OUTPUT)
PIN POWER MONITOR
29
28
27
MODULATOR BIAS CONTROL
18
TRANSMITTER OUTPUT POWER CONTROL
17
10 GB/s DATA
26
LiNb O3 MACH-ZEHNDER MODULATOR
SOA BIAS CURRENT
25b
25a
LASER WAVELENGTH CONTROL
16
24
20
added text
MULTI-WAVELENGTH ETALON REFERENCE 23
SOA 22
TUNABLE LASER DIODE 21
LASER BIAS CURRENT
LASER TEMPERATURE CONTROL
15

FIG. 2